

## Remarks

### Support for new claims 34 and 35

That the “probability” of these claims is “the probability over [the *or* a] period of time” of new claims 34 and 35 is clear from the definition of MTTF reliability at page 3, lines 25-27 of Applicants’ Specification as filed.

### Traversal of Examiner’s rejections

Examiner’s rejections are substantially the same as those which she made in the *International Preliminary Report on Patentability*. The following *Traversal* is based on the *Traversal* of Applicants’ *Response to a Written Opinion* but takes the *Response to Applicants’ Arguments* which Examiner provided in the *International Preliminary Report* into account.

*The rejections of claims 1 and 10 under 35 U.S.C. 102(e) as anticipated by Bernhardt*

In her rejection, Examiner finds the claimed steps of

using the historic returns data to determine a probability that at least one of the selected assets will not provide the desired minimum return indicated for the asset; and  
outputting the probability.

at paragraphs [0029]-[0033] of Bernhardt. The difficulty here is that the cited locations in Bernhardt disclose nothing whatever about the claim’s “probability that at least one of the selected assets will not provide the desired minimum return indicated for the asset”. Moreover, as revealed by a Lexis search for portions of the reference within 25 words of the search term *probability*, the sum total of disclosure in the reference concerning “probability” is the following:

... invention is now given to demonstrate the potential improvement of accuracy in the method as against the prior art Markowitz approach.

[0144] Synthetic data was generated for 10 correlated financial assets The underlying **probability** density function for the price increments was taken as a 'Student' distribution with parameter  $d=6$  giving power law tails of order  $O(x^{-7/2})$  for individual ...

... each series were taken as 'training data'. The time series for the combined portfolio was generated (over the whole data set) and histograms of the price increments of the portfolio obtained as a numerical approximation to its **probability** density function. These histograms are shown below using a logarithmic y-axis (probability) in order to show the differences in the tails of the distributions which are most important for risk control.

[0146] As can be clearly seen the **probability** of large negative fluctuations is significantly reduced by using algorithm 1 relative to the classical Markowitz approach.

None of this has anything to do with the claimed method steps. Consequently, the reference does not disclose either of the above steps of claim 1 and the reference cannot anticipate claim 1 or any of the claims dependent from claim 1. As Examiner will immediately see, the argument made with regard to claim 1 applies equally to independent claim 10 and all of the claims dependent therefrom.

*The rejection of claim 4 as anticipated by Bernhardt*

In this claim, the inputs include a “probability of occurrence for the scenario”; the rejections are based on the same locations in the reference as those of claims 1 and 10; as is apparent from the foregoing discussion of claim 1, Bernhardt does not disclose a “probability of occurrence for the scenario”. As is also apparent from the foregoing discussion, Bernhardt further does not disclose the step of “determining weights of the assets in the set such that the *worst-case* value of the set of assets is optimized over the set of scenarios”. Consequently, the reference does not anticipate claim 4 or any claims dependent from that claim.

*The rejection of dependent claims 6-8, 13-26, and 33 as anticipated by Bernhardt*

All of these claims are of course not anticipated by Bernhardt because they are dependent from claims that are not anticipated by the reference. In addition, the added limitations of these claims are not disclosed in Bernhardt and these claims are consequently novel in their own rights over the reference. With regard to claims 6-8, these claims all add further limitations to scenarios. Since Bernhardt does not disclose scenarios, neither can the reference disclose these further limitations and the claims are novel in their own

rights over the reference. With regard to claims 13-18, the added limitations of these claims have to do with robust optimization, and as pointed out with regard to independent claim 4, Bernhardt discloses nothing whatever about robust optimization. Consequently, claims 13-18 are novel in their own rights over the reference. Claims 22-26 present kinds of additional constraints that are not employed in Bernhardt, and these claims, too, are thus novel in their own rights over the reference.

*The rejection of dependent claims 5, 11, 12, 28-33 under 35 U.S.C. 103 as obvious over the combination of Bernhardt and Columbus*

Claim 5 is dependent from claim 4; claims 11, 12, 28-33 are all dependent from claim 10; As set forth above, claims 4 and 10 are patentable over Bernhardt; and consequently, so are their dependent claims.

Further, claims 5, 11, 12, 28-33 all involve the additional limitation of real option values. In her rejection of these claims, Examiner refers Applicants to paragraph [0007] of Columbus for the disclosure of real options. That paragraph, however, reads in its entirety as follows:

[0007] In U.S. Pat. No. 5,812,987 to Luskin et al., an investment fund management system manages assets in one or more investment funds over a specified period of time. This system, comprised of components 31-39, determines a strategic investment mix of assets in a particular fund periodically as a function of changing risk. Each fund is managed by manipulating the investment mix of the fund in accordance with criteria related to a diminishing length of time to a horizon where cash will be withdrawn therefrom. In prior art FIG. 3 of the present invention (FIG. 6 of Luskin et al.), the investment mix is adjusted by first obtaining investor portfolio information 35 and market data 36. This data is used to forecast market risks and returns 37, and to determine the portfolio risk 38. Then, the anticipated cash flow stream 39, the discount function 34, and present value of future cash flow 33 are calculated before producing an optimized portfolio 32 of assets.

The “anticipated cash flow stream 30, the discount function 34, and present value of future cash flow are calculated” is of course a description of how the net present value of an asset is calculated, not a description of how the asset’s real option value is calculated.

For the difference between the net present value, or NPV, of an asset and its real option value, see the current Wikipedia definitions of the terms. It should further be pointed out here that a Lexis search of Columbus for references to the term “real option” found no occurrences of the term.

Since Bernhardt does not disclose all of the limitations of claims 4 or 10 and Columbus discloses nothing about real option values, the combined references do not disclose all of the elements of claims 5, 11, 12, 28-33 and Examiner has consequently not made the *prima facie* case required by MPEP 2142 for a rejection under 35 U.S.C. 103.

Claims 29-32 are dependent from claim 28 and are not obvious because that claim is not obvious. The added limitations of claims 29-32 are further found neither in Bernhardt nor in Columbus. Examiner cites Columbus’ FIG. 5C with regard to claim 31, but nothing in the Figure itself or the descriptions of the Figure found in paragraphs 0923, 0928, or 0929 indicates that FIG. 5c has anything whatever to do with the tax sensitivity of an asset, as required by the added limitation of claim 31. Because the limitations of claims 29-32 are disclosed in neither Bernhardt nor Columbus, the claims are patentable in their own rights over the references.

#### *Patentability of new claims 34 and 35*

These claims are dependent from claim 1 and claim 10 respectively and are consequently patentable because they are dependent from patentable claims. It should further be pointed out that claims 34 and 35 conform fully to the definition of MTTF reliability at page 3, lines 24-27 of Applicants’ Specification as filed and thus overcome Examiner’s remark in the *International preliminary report* that MTTF reliability is not recited in Applicants’ claims.

#### **Conclusion**

Applicants have amended their claims to add two new claims that clearly recite MTTF reliability. Applicants have further demonstrated that the claims as amended are fully

supported by the Specification as filed and are patentable over the references cited thus far in the prosecution. Applicants have thus been fully responsive to Examiner's non-final rejection mailed 3/17/2008 as required by 37 C.F.R. 1.111(b). Applicants consequently respectfully request that Examiner continue with her examination and allow the claims as presently amended, as provided by 37 C.F.R. 1.111(a). Applicants further respectfully request a telephonic interview with Examiner on the basis of this response when Examiner next takes up this application; an interview form is attached. Included with this response is a fee of \$50.00 for new claims 34 and 35. No other fees are believed to be required; should any be, please charge them to deposit account 50135.

Respectfully submitted,

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6/17/2008  
Date

## Applicant Initiated Interview Request Form

Application No.: 10/561,095 First Named Applicant: Hunter  
Examiner: Cabrera, Zoila E. Art Unit: 2123 Status of Application: first Office action

**Tentative Participants:**

(1) Gordon E. Nelson for Applicant (2) \_\_\_\_\_  
(3) Examiner Cabrera (4) \_\_\_\_\_

Proposed Date of Interview: TBA Proposed Time: TBA AM/PM

**Type of Interview Requested:**

(1) ☒ Telephonic (2) ☐ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☐ YES ☒ NO

If yes, provide brief description: \_\_\_\_\_

### Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) <u>102 rejection</u>	<u>1, 4, 6-10, 13-26</u>	<u>USPPA 2003/00557659</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) <u>103 rejection</u>	<u>5, 11, 12, 28-33</u>	<u>2003/00557659 and</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) _____	<u>7</u>	<u>USPPA 2002/0022988</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

☐ Continuation Sheet Attached

**Brief Description of Argument to be Presented:**

The argument can be found in Applicant's response of 6/17/2008, to which this form is attached.

An interview was conducted on the above-identified application on \_\_\_\_\_.

**NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).**

**This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.**

/Gordon E. Nelson/  
\_\_\_\_\_  
Applicant/Applicant's Representative Signature  
Gordon E. Nelson  
\_\_\_\_\_  
Typed/Printed Name of Applicant or Representative  
#30,093

Registration Number, if applicable

\_\_\_\_\_  
Examiner/SPE Signature